UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,428	08/28/2000	Chad A. Cobbley	108298525US	7172

25096 7590 01/02/2003

PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
CHAMBLISS, ALONZO	
ART UNIT	**PAPER NUMBER**
2827	

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/649,428	COBBLEY, CHAD A.	
	Examiner	Art Unit	
	Alonzo Chambliss	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) *52-64* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3,5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The change of address filed on 4/12/01 has been fully considered and made of record in Paper No. 2.

2. Amendment A filed on 10/4/02 has been fully considered and made of record in Paper No. 6. Therefore, claims 52-64 have been cancelled.

Election/Restrictions

3. Applicant's election without traverse of claims 1-51 in Paper No. 6 is acknowledged.

Claims 52-64 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 2/26/02 in Paper No. 3 and 10/4/02 in Paper No. 5 was filed before the mailing date of the non-final rejection on 12/29/02. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they include the following reference sign(s) not mentioned in the description: 61 in Fig. 6. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: " PACKAGED MICROELECTRONIC DEVICES WITH INTERCONNECTING UNITS ".

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1-51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. In Claims 1, 13, 21, 26, 27, 35, 43, and 51, the phrase " to be " is vague and indefinite since the phrase suggest that cap zone can be encapsulated or does not have to be encapsulated.

10. Claim 2 recites the limitation " the contact array " in line 3. There is insufficient antecedent basis for this limitation in the claim.

11. In Claims 2, 5, 8, 18, 32, 40, and 48, the phrase " to be " is vague and indefinite since the phrase suggest that die can be attached or does not have to be attached.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-25 and 27-51, insofar as definite, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ri et al. (JP 11-17048).

With respect to Claims 1, 13, 21, 27, 35, 43, and 51, Ri teaches an interconnecting unit 20 comprising a substrate 28 (i.e. a reinforcing material) having a cap-zone defined by an area that is encapsulated by a protective casing 34). There is an opening in the cap-zone. A plurality of interconnects having a plurality of first elements 23 (i.e. contact elements) are in the cap-zone. A plurality of second elements 25 (i.e. ball pads) are arranged in an array outside of the cap-zone with a plurality of transmission lines 24 (i.e. conductive lines or trace) coupling the first elements 23 to the second elements 25. It is inherent in that the microelectronic die 31 has an integrated circuit to voltage and signal sources. The microelectronic die 31 has a plurality of bond pads 32 on an exterior surface and at least a set of bond pads 32 being operatively

coupled to the integrated circuit. The microelectronic die 31 is attached to the substrate 28 and contact elements 23 are electrically coupled to corresponding bond pads 32. The gasket 21 or 36 (i.e. barrier) is attached to the substrate 28 outside of the cap-zone, wherein at least a portion of the gasket 36 is adjacent to at least a portion of the cap-zone. For example, when the gasket is represented by 21. The gasket 21 has a portion of the film that is outside of the cap-zone, wherein that portion outside of the cap-zone is the portion directly below the connection terminals 35. The gasket 36 (i.e. seal) is configured to inhibit the protective casing 34 from covering the substrate outside of the cap-zone (see pages 2 and 3 of the English translation and Figs. 2-7).

With respect to Claim 2, Ri teaches the substrate 28 having a die-side to which the die 31 is attached and the cap-zone is on the die-side surrounding the first elements 23. The gasket 21 or 36 is a thin film disposed on the die-side of the substrate such that the thin film surrounds the cap-zone (see pages 3 and 4 of the English translation; Figs. 2-7).

With respect to Claims 3, 4, 6, 7, 11-16, 19, 20, 22-24, 28-30, 33, 34, 36-38, 41, 42, 44-46, 49, and 50, Ri teaches the thin film of gasket 21 that is a pliable tape applied to the substrate 28. The tape 21 (i.e. barrier) has an opening with edges bordering the cap-zone. The thin film 21 is a compressible film material (i.e. a flexible polyimide) adhered to the substrate 28 (see paragraph 16 and 17 of the English translation).

With respect to Claims 5, 18, 32, 40, and 48, Ri teaches the substrate 28 having a slot 22, a die-side to which the die 31 is attached and a wire-side opposite the die side. The first elements 23 of the interconnects comprise of a plurality of contact

elements being arranged in a contact array adjacent to the slot 22 on the wire-side of the substrate 28 such that the cap-zone surrounds the contact array and the slot 22 on the wire-side of the substrate. The second elements 25 comprise ball-pads arranged outside of the cap-zone on the wire-side of the substrate 28 with transmission lines 24 comprise electrically conductive lines. The gasket 21 or 36 (i.e. barrier) is disposed on the wire-side of the substrate 28 such that the thin film surrounds the cap-zone and a thin film having an opening with edges bordering the boundary of the cap-zone (see pages 2 and 3 of the English translation; Figs. 2-7).

With respect to Claim 8, Ri teaches the substrate has a slot 22, a die-side to which the die 31 is attached and a wire-side opposite the die-side. The first elements 23 of the interconnects comprise a plurality of contact elements being arranged in a contact array adjacent to the slot 22 on the wire-side of the substrate 28 such that the cap-zone includes a first cap region surrounding the contact array and the slot 22 on the wire-side of the substrate 28. The second cap region surrounds an area on the die-side that is covered by the die 31 when the die 31 is attached to the substrate 28. The second elements 25 comprise ball-pads arranged outside of the first cap region on the wire-side of the substrate 28 with transmission lines 24 comprising electrically conductive lines. The gasket comprises a first thin film 29 disposed on the die-side of the substrate surrounding the first cap region a second thin film 21 disposed on the wire-side of the substrate 28 surrounding the second cap region (see Figs. 2-7).

With respect to Claims 9 and 10, Ri teaches a first thin film 29 made of a non-silicon resin (i.e. polyimide resin) and a second film 21 made of polyimide resin. The

first and second films 29, 21 are pliable tape sections (see paragraph 20-22 on page 3 of the English translation).

With respect to Claims 17, 25, 31, 39, 47, Ri teaches the gasket 36 (i.e. barrier) that is a ridge formed in the substrate 28 that surrounds the cap-zone (see pages 3 and 4 of the English translation).

14. Claim 26, insofar as definite, are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sasaki et al. (JP 11-77733).

With respect to Claim 26, Sasaki teaches an interconnecting unit comprising a substrate 10 having a cap-zone defined by an area that is encapsulated by a protective casing 14 and a plurality of conductive features that are electrically connected to bonding wires. The conductive features are configured to couple the bond pads on a die and the electrical circuitry in the die. It is inherent that a semiconductor die has integrated circuit to voltage and signal sources. A seal 16 on at least one side of the substrate, wherein the seal 16 being configured to engage a mold 20, 20b during a molding process for forming the protective casing 14 in a manner that prevents a molding compound (i.e. protective casing) from leaking between the substrate and the mold 20a, 20b during the molding process (see the entire English translations and Figs. 1-5).

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

Conclusion

15. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (703) 306-9143. The fax phone number for this Group is (703) 308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956.

Alonzo Chambliss
Examiner
Art Unit 2827

AC/December 29, 2002